

DEPARTMENT OF TRANSPORTATION

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April 16, 2003

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

Addendum No. 4

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN FRANCISCO COUNTY IN SAN FRANCISCO FROM 0.6 KM TO 1.3 KM EAST OF THE YERBA BUENA TUNNEL EAST PORTAL.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on June 3, 2003.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions, and the Proposal and Contract.

Project Plan Sheets 405, 409, 410, 411, 415, 417, 432, 435, 497, 508, 509, 535, 559, 601, 628, 638, 720, 806, 816, 821, 822, 935, 937, 938, 939, 940, 941, 942, 943, 959, 960, 961, 962, 963, and 964 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheets 13A, 13B, and 20A are added. Half-sized copies of the added sheets are attached for addition to the project plans.

In the Notice to Contractors, the thirteenth paragraph added per Addendum No. 3 is revised as follows:

"An informational meeting will be held on April 22, 2003 at 9:00 a.m. in the Parkview Conference Room, District 4 Office, 111 Grand Ave, Oakland, CA 94612. The purpose of the meeting is to provide an opportunity for a question and answer session with the United States Coast Guard. Bidders are encouraged to submit their questions in writing to the Duty Senior at the District 4 Office, 111 Grand Avenue, Oakland, California 94612, Fax number: (510) 622-1805, e-mail address: duty_senior_district04@dot.ca.gov, telephone: (510) 286-5209, at least two calendar days prior to the meeting. The written inquiry should clearly identify the contractor's identity and the contract specification(s) or drawing(s) that form the basis for the question. Each question should be separately numbered. Bidders may also ask questions at the meeting, but each question must be in writing and submitted only during the first half hour of the meeting. To the extent feasible and at the discretion of the Department and United States Coast Guard, an oral response will be provided to each written question. The Department's final written response to each question will be made available to all bidders in accordance with the bidder inquiry provisions of this Notice to Contractors. Bidders are cautioned that oral responses and instructions given at the meeting are not binding on the Department."

In the Special Provisions, Section 5-1.16, "INTEGRATED SHOP DRAWINGS," is revised as attached.

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In the Special Provisions, Section 5-1.20, "AREAS FOR CONTRACTOR'S USE," in the second paragraph the first and second subparagraphs are revised as follows:

"Area EF" is available to both Contract 04-0120E4 and this contract until June 1, 2005 and then to this contract after that date. Prior to June 1, 2005, the Contractor shall coordinate any planned work in "Area EF" with the Engineer and Contract 04-0120E4 Contractor. Additionally, footings at tower T1 and footing and piers at Pier E2 to be constructed by others under Contract 04-0120E4 will be substantially complete by June 1, 2005 to allow the Contractor to complete the tower and E2 work specified under the contract.

"Area CF" is designated for use by Contract 04-0120C4 and will not be available to the Contractor until August 1, 2004. Additionally, footing and piers at Pier W2 to be constructed by others under Contract 04-0120C4 will be substantially complete by August 1, 2004 to allow the Contractor to complete the W2 work specified under the contract."

In the Special Provisions, Section 5-1.20, "AREAS FOR CONTRACTOR'S USE," the seventh paragraph is deleted.

In the Special Provisions, Section 5-1.27, "PAYMENTS," in the second paragraph, Item E is added as follows:

"E. Establish Marine Access \$25,000,000"

In the Special Provisions, Section 8-4, "AUDITS," is revised as attached.

In the Special Provisions, Section 10-1.08, "COOPERATION," is revised as attached.

In the Special Provisions, Section 10-1.18, "MOBILIZATION," subsection "MARINE ACCESS" is deleted.

In the Special Provisions, Section 10-1.185, "ESTABLISH MARINE ACCESS," is added as attached.

In the Special Provisions, Section 10-1.39, "CABLE TIE DOWN," the following paragraph is added after the first paragraph:

"The Contractor shall design, furnish, and install the cable tie-down anchors. The cable tie-down system proposed for use shall conform to the details shown schematically on the plans."

In the Special Provisions, Section 10-1.39, "CABLE TIE DOWN," the following item is added to the fourth paragraph as follows:

"5. Material specifications and calculations."

In the Special Provisions, Section 10-1.39, "CABLE TIE DOWN," subsection "MATERIALS" the second and third paragraphs are revised as follows:

"Precast access cover slabs and neoprene bearing pads shall conform to the provisions in "Concrete Structures," of these special provisions.

High strength non-shrink grout shall conform to the provisions in "High Strength Nonshrink Grout," of these special provisions."

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In the Special Provisions, Section 10-1.39, "CABLE TIE DOWN," subsection "CONSTRUCTION" the third paragraph is revised as follows:

"Cable tie downs shall be designed and installed to facilitate strand replacement and tendon adjustment. The capability for replacement and adjustments shall sufficiently reduce the force in the cable tie down without releasing the anchorage component devices."

In the Special Provisions, Section 10-1.40, "CONCRETE STRUCTURES," subsection "MASS CONCRETE" the first paragraph under "Demonstration Pours," is revised as follows:

"The Contractor shall cast at least one mock-up each for the Pier W2 cap beam and Pier E2 cross beam including concrete, reinforcement, and all concrete embedment as shown on the plans to demonstrate adequacy of hydration and thermal properties of concrete predicted by the Thermal Control Plan. The mock-ups shall demonstrate that the procedures defined in the Thermal Control Plan meet the performance criteria as specified in the Thermal Control Plan and these special provisions. The mock-ups shall not be part of the permanent structure and shall become the property of the Contractor. They shall be removed from the work site and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications."

In the Special Provisions, Section 10-1.52, "CABLE SYSTEM," subsection "MATERIALS AND FABRICATION" subsection "Cable Wire" in the table of the eighth paragraph, the entry for "Wire Diameter Tolerance" is replaced with the following:

Wire Diameter Tolerance	<p>The bare wire shall be measured at the minimum diameter and at a diameter perpendicular to the minimum. The area of the bare wire so measured and calculated as an ellipse shall be not less than 95.6 % of the nominal wire area.</p> <p>The galvanized wire diameter shall be measured with a micrometer sensitive to 0.01 mm. At a measuring point, the largest diameter shall be measured first and the second measurement shall be taken at 90 degrees from the first. Each of the two readings shall be repeated twice and averaged. The average of the two readings shall be within plus 0.08 mm and minus 0.04 mm from the nominal diameter shown on the plans. The difference of the two readings shall not be greater than 0.08 mm.</p>
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In the Special Provisions, Section 10-1.52, "CABLE SYSTEM," subsection "MATERIALS AND FABRICATION" subsection "Shop Prefabricated Parallel Wire Strand (PWS)", the following sentence is added to the fourth paragraph as follows:

"The theoretical length is the total cable length calculated based on the dead load state of the bridge as established by the erection plan developed by the Contractor and approved by the Engineer."

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In the Special Provisions, Section 10-1.52, "CABLE SYSTEM," subsection "ERECTION" subsection "PWS Cable", the sixth paragraph is revised as follows:

"Circumferential saddle marks of the first erected strand shall be placed on-the-mark at the tower saddles, deviation saddles, jacking saddles and splay saddles and blocked with shims in between the saddle separating plates as necessary to hold it in position. At this stage, the Contractor shall shake-out the first strand. The sag of the first erected strand shall be adjusted in each span to the proper bare-cable sag. The sag shall be surveyed and adjusted during a period when the strand and the air temperature are uniform. The strand shall be adjusted to the calculated sag to an accuracy of 1/10,000. All other strands in the cable shall subsequently be adjusted to sag properly with respect to the surveyed strand, following the approved cable erection plan."

In the Special Provisions, Section 10-1.62, "CLEAN AND PAINT STRUCTURAL STEEL," is revised as attached.

In the Special Provisions, Section 10-1.63, "CLEAN AND PAINT STRUCTURAL STEEL (MODULAR JOINT SEAL ASSEMBLY, SPHERICAL BUSHING BEARING, AND SHEAR KEY)," is revised as attached.

In the Special Provisions, Section 10-1.745, "BIKEPATH RAILING," is added as attached.

In the Proposal and Contract, the Engineer's Estimate for both Alternatives 1 and 2, Items 54, 67, 93, 94, and 101, are revised, Items 155, 156, 157, 158, 159, and 160 are added, and Items 3 and 154 are deleted as attached.

To Proposal and Contract book holders:

Replace pages 28, 30, 31, 32, 33, 35, 36, 38, 39, 40, 41, and 43 of the Engineer's Estimate in the Proposal with the attached revised pages 28, 30, 31, 32, 33, 35, 36, 38, 39, 40, 41, and 43 of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it. A copy of this addendum and the modified wage rates are available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY JEFF DeFEVERE FOR:

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

5-1.16 INTEGRATED SHOP DRAWINGS

Difficult construction is anticipated at the Pier W2 cap beam and Pier E2 cross beam that are highly congested with reinforcing steel, high strength rods, post-tensioning strand tendons, cable tie-down pipe sleeves, anchor bolts, and other concrete embedded items as shown on the plans. The Contractor shall develop three-dimensional integrated shop drawings (ISD's) for the Pier W2 cap beam and Pier E2 cross beam in accordance with the details shown on the plans and the requirements of this section. ISD's shall conform to Section "Working Drawings," of these special provisions. ISD's shall be of sufficient detail to demonstrate compatibility of items within the concrete.

Embedded items that are to be shown on the ISD's shall include, but are not limited to, the following:

- A. Bar reinforcing steel and splices including lap, welded, and mechanical splices
- B. Anchor bolts
- C. Anchor bolt plates
- D. Anchorage reinforcement and hardware
- E. Grout vents
- F. High strength rods
- G. Cable tie-down pipe sleeves
- H. Joint seal assemblies
- I. Drainage pipe
- J. Utility conduits and openings
- K. Inserts, bolt sleeves and studs
- L. Other items, as shown on the plans.

The Contractor shall use the ISD's to eliminate interference between the planned positions of embedded items and to satisfy the concrete cover shown on the plans. The Contractor shall utilize commercially available software that checks for interference in three dimensions. Prior to acquiring the software, the Contractor shall submit to the Engineer the product name and application features of the software for review and approval. The software shall be compatible with the computer-aided drafting (CAD) software used to develop the ISD's. Bar reinforcement shall be shown with deformed diameters. The Contractor shall develop CAD files using different layers for each type of embedded item such that the sequence of construction of the member or area being detailed can be shown.

If a conflict is identified, the Contractor shall document the conflict and propose changes to the embedded items in the ISD's to resolve the conflict.

The Contractor's proposed changes in the ISD's shall comply with the following sequence of item adjustments:

A. Pier W2 Cap Beam:

- 1. Non structural embedded items
- 2. Reinforcing steel
- 3. Vertical prestressing ducts
- 4. Transverse prestressing ducts
- 5. Continuity prestressing ducts*
- 6. High strength anchor rods*
- 7. Cable tie-down cable pipe sleeves*

*The Contractor is advised that the Engineer may not permit modifications to the location of items 5, 6, and 7.

B. Pier E2 Cross Beam:

- 1. Nonstructural embedded items
- 2. Reinforcing steel
- 3. Prestressing ducts
- 4. Shear key anchor bolts**
- 5. Bearing anchor bolts**

**The Contractor is advised that the Engineer may not permit modifications to the location of items 4 and 5.

If a conflict requires bar reinforcement be adjusted, the Contractor may proceed with performing reinforcing steel adjustments in the ISD's prior to submitting the changes to the Engineer. The Contractor shall consider the following measures in the order prescribed to resolve interference issues during the preparation of the ISD's:

- A. Adjust reinforcement.
- B. Bundle bars.
- C. Relocate splices.
- D. Change reinforcement size and number. Reduction of the total reinforcement area will not be permitted.
- E. Change reinforcement shape.
- F. Move embedded inserts.

The ISD's to be submitted to the Engineer shall include the following:

- A. Three sets of the ISD's corresponding to the details as shown on the plans without any modifications. These ISD's shall indicate all conflicts including locations of the conflicts and items involved in the conflicts.
- B. Two complete lists of conflicts with descriptions and the Contractor's proposed modifications for each conflict. If more than one measure is possible for resolving the conflict, the Contractor shall document each of the alternative measures.
- C. Three sets of the ISD's corresponding to the details as shown on the plans with incorporation of the Contractor's proposed modifications. These ISD's shall indicate that all previous identified conflicts have been resolved and concrete cover requirements as shown on the plans are met.
- D. ISD's shall be 559 mm x 864 mm in size and shall use colored ink to differentiate each type of embedded items. For each portion of the structure, ISD's shall include a minimum of six isometric views. Any two isometric views shall be 90 degrees apart.
- E. Two copies of the ISD's in electronic form on compact discs or tape for use by the Engineer.

Submittal of isometric drawings made from ISD's shall in no way relieve the Contractor from any other working drawing submittal required by these special provisions or the Standard Specifications.

CAD files of the contract drawings will not be made available to the Contractor.

After complete ISD's are received by the Engineer, the Contractor shall allow the Engineer 20 working days for review and approval. For modifications that are not approved by the Engineer, the Contractor shall propose alternative modifications and resubmit the ISD's as specified in this section. For each revised ISD's submitted by the Contractor, the Contractor shall allow the Engineer an additional 5 working days for review and approval. Construction of the Pier W2 cap beam and Pier E2 cross beam shall not begin until the Engineer reviews and approves the complete ISD's with all conflicts resolved.

No extension of time will be permitted for the Contractor's failure to complete the ISD's as required by these special provisions.

Full compensation for preparing ISD's, including all revisions necessary due to conflict resolution measures taken by the Contractor, shall be considered as included in various contract items of work involved and no additional compensation will be allowed therefor.

SECTION 8-4. AUDITS

8-4.01 AUDITS

Manufacturing or fabrication of the following materials shall not commence at a facility, nor will working drawings be accepted for submittal for those materials prior to the Engineer or his authorized representative completing or waiving a facility audit (Department audit) and issuing an audit report determining that the facility is in compliance with the "Manufacturing and Fabrication Self Qualification Audit" (MFSQA) and other contract requirements.

CABLE TIE DOWN
PRESTRESSING HIGH STRENGTH ROD (PIER E2)
FURNISH BEARINGS
TOWER SUSPENDER ASSEMBLIES
FURNISH STRUCTURAL STEEL (BRIDGE)
FURNISH STRUCTURAL STEEL (BRIDGE) (TOWER)
FURNISH STRUCTURAL STEEL (BRIDGE) (TOWER STRUT)
FURNISH STRUCTURAL STEEL (BRIDGE) (ORTHOTROPIC BOX GIRDER)
FURNISH STRUCTURAL STEEL (BRIDGE) (SADDLE)
FURNISH STRUCTURAL STEEL (BRIDGE) (PIPE BEAMS)
FURNISH SUSPENDER SYSTEM
FURNISH STRUCTURAL STEEL (BRIDGE) (BIKEPATH)
FURNISH PWS CABLE SYSTEM
FURNISH AND INSTALL SHEAR KEY (PIER E2)
CLEAN AND PAINT (STRUCTURAL STEEL)
CLEAN AND PAINT STRUCTURAL STEEL (TOWER)
CLEAN AND PAINT STRUCTURAL STEEL (ORTHOTROPIC BOX GIRDER)
CLEAN AND PAINT CABLE SYSTEM
CLEAN AND PAINT STRUCTURAL STEEL (BIKEPATH)

Manufacturers and suppliers sufficient to perform the work shall be identified prior to bid and/or award. The Contractor shall submit a MFSQA of each facility considered for use by the Contractor or any subcontractor, supplier, or fabricator, including those of all lower subcontracted tiers, to prepare materials for incorporation into the project for which a Department audit is required, with the bid as outlined in Section 8-4.01, "Audits," of these special provisions. A copy of the MFSQA form is included as Material Information Handout in "Project Information," of the special provisions. The form is also available at the following website:

<http://www.dot.ca.gov/hq/esc/Translab/smbpubs.htm>

A Department audit will assess the accuracy of the manufacturer's or fabricator's responses to the questions in the MFSQA, and of the documentation provided regarding the manufacturer's or fabricator's quality control program. Inaccuracies in the MFSQA discovered by the Department's audit will result in the contractor failing that audit. Deductions from the payment to the contractor for failing an audit are as specified in this section. This deduction will be in addition to deductions as specified elsewhere in these specifications. Within 2 weeks of completing the audit, the Engineer will furnish an audit report assessing the facility's compliance with the MFSQA and other contract requirements.

In order to have successfully completed an audit, there shall be only affirmative or not applicable responses to all the questions listed in the MFSQA with included documentation and information to substantiate responses. Facilities that respond to questions with contingencies may qualify for a contingent pass for both the MFSQA review and Department audit if a complete and orderly description of how the facility intends and is capable of meeting the MFSQA item. If there are non-applicable questions, the comment field must provide an explanation, which may be supplemented by additional documentation, if necessary. A negative response to any question in the MFSQA checklist during the audit may result in the determination that the facility is not in compliance with the contract requirements and shall be noted in the audit report.

The Engineer will approve or fail each MFSQA in writing. Should a facility fail a MFSQA, the manufacturer or fabricator must improve the facility to satisfy all requirements in this Contract prior to submitting a revised MFSQA. The Contractor shall submit for the approval of the Engineer, the revised MFSQA and a report of how deficiencies that were noted by the Engineer have been corrected, or notify the Engineer that the particular facility will not be used for the project. The time allowed for the revised MFSQA review shall not be less than the time specified for the initial MFSQA review.

The Contractor shall not request a Department Audit of a facility until its MFSQA is approved in writing by the Engineer. For MFSQA forms received with the bid, the Contractor shall allow the Engineer 28 calendar days from the pre-award qualifications meeting to review the submittal. For manufacturers and suppliers identified subsequent to bid and/or award, the Contractor shall allow the Engineer 14 calendar days from receipt of a complete MFSQA to review the submittal. In the event the Engineer fails to complete the review within the time allowed, and if, in the opinion of the Engineer, completion of the work is delayed or interfered with by reason of the Engineer's delay in completing the review, the Contractor will be compensated for any resulting loss, and an extension of time will be granted, as provided for in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

The Contractor is responsible for conducting and reviewing the MFSQA of each specified subcontractor, supplier, and fabricator, including those of all lower subcontracted tiers. The MFSQA may be considered part of documentation demonstrating how the shop will meet the Contract requirements. Deficiencies in the MFSQA noted by the Contractor shall be corrected or otherwise satisfactorily addressed prior to submission of the MFSQA to the Department. Deficiencies noted by the Department prior to Award may be cause for determination that the bidder is not capable of meeting the contract requirements.

Prior to requesting the first Department audit, a general steel meeting shall be held between the Engineer, the Contractor, and the QCM. This meeting shall be held in the San Francisco Bay Area. At least 7 calendar days prior to this meeting, the Contractor shall submit a complete list of facilities (noting changes from the list submitted at bid time with the questionnaire) that will be used for the manufacture and fabrication of structural steel items of materials for which a Department audit is required. The facility list shall include the mailing address, the physical address, the owners, the managers, the specific description(s) of the items (as shown in the Engineer's Estimate) and approximate total weight that are to be produced at the respective facility. The list shall designate the sequence in which the facilities are to be audited and shall be regularly updated by the Contractor as audits take place and additional audits are requested. If a fabricator or manufacturer has more than one facility where work will be performed, each facility shall be listed separately and are subject to independent audits, including self qualification audits.

The Contractor shall request, in writing, a Department audit in sufficient advance of the work so as to not impact it. The Contractor shall allow the Engineer 50 calendar days from the date of receipt of the request to complete the first four Department audits. If audits of more than four facilities are requested at one time, the time to be allowed for completing each audit shall be not less than 50 calendar days plus 7 calendar days for each additional facility. After the first four audits and if no audits are currently scheduled, the Contractor shall allow the Engineer 21 calendar days from the date of receipt of the request to complete the Department audits. If audits of more than one facility are requested at one time, the time to be allowed for completing each audit shall be not less than 14 calendar days plus 7 calendar days for each additional facility. The Engineer may waive a Department audit at its discretion only. Should the Engineer, through no fault of the Contractor, fail to complete a given audit within the time specified, and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in completing said audit, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

It shall be the Contractor's responsibility to ensure that the facility personnel provide the Engineer sufficient access and cooperation so that the Engineer can complete the audit within the time specified. The Engineer shall be permitted to photograph the facility's capabilities as part of the Department's audit. The Contractor's Quality Control Manager (QCM) and the facility quality control personnel shall be present and cooperative during the Engineer's audit.

Successful completion of an audit shall not relieve the Contractor of the responsibility for furnishing materials or producing finished work of the quality specified in these special provisions and as shown on the plans.

If given a contingent pass, a second Department audit may be required before the facility can commence work, based on the magnitude of the contingencies provided by the Contractor. The method prescribed by the contractor in the MFSQA to substantiate a contingency item must be fully enacted prior to requesting a second Department audit, if necessary. The Department will not designate a facility as having passed a Department audit unless all contingency items are corrected to become affirmative answers. No deduction will be taken for facilities that qualify for a contingent pass, but require a second Department audit as long as that facility passes the second Department audit. Should the manufacturer or fabricator fail a required second Department audit after having received a contingent pass on the first Department audit, a deduction from the payment to the Contractor in the amount of \$22,000 shall apply.

Should a facility fail the Department audit, the manufacturer or fabricator must improve the facility to satisfy all requirements in this Contract prior to requesting another audit. The Contractor shall include, in the request for another audit, a report of how deficiencies that were noted by the Engineer have been corrected. The time allowed for any re-audits shall not be less than the time specified for the initial audit, and a revised audit sequence shall be submitted. Should the manufacturer or fabricator fail the first Department audit and require any additional audits, a deduction from the payment to the Contractor in the amount of \$22,000 shall apply.

Should the manufacturer or fabricator fail the second department audit after having failed the first Department audit, an additional deduction of \$22,000 or \$.04 per kilogram of steel produced at that facility, whichever is greater, per re-audit shall apply.

Should a facility be added to the contract post award, but a self audit for that facility is not included with the Pre-award Information/Questionnaire, it is recognized that the Department has been adversely affected in its ability to perform audits in a timely manner. As such, the cost of conducting an additional Department Audit is \$22,000, which is to be deducted from payments due to the Contractor. Additional subcontractors added subsequent to bid may be added without penalty, if it can be demonstrated that the subcontractor was not considered prior to bid, as determined by the Engineer. It is expected that the Contractor will have sufficient facilities selected at bid time to perform the work.

At the Contractor's option, the Contractor may replace a facility that fails an audit with a new facility. All the previously specified audit requirements shall apply to replacement facilities. The time required for review of the MFSQA and the Department audit shall be as previously specified. A new audit list with sequence designation shall be submitted with the Contractor's audit for the replacement facility.

No more than 3 Department audits will be performed for a given facility.

If a facility fails the third Department audit, deductions will be made for materials produced by that facility. Deductions will be made to compensate for the additional quality assurance inspection and testing that will be performed by the Engineer in the absence of an approved audit. Whereas it is and will be impractical and extremely difficult to ascertain and determine the actual increase in such expense it is agreed that payment to the Contractor for furnishing the materials will be reduced as follows. If the facility is within 480 airline kilometers from both Sacramento and Los Angeles, the deduction shall be \$0.08 per kg of steel item produced at this facility or \$22,000, whichever is greater. If the facility is more than 480 airline kilometers from both Sacramento and Los Angeles, the deduction shall be \$0.10 per kg of steel item produced at this facility or \$22,000, whichever is greater. These deductions for failure of the third audit shall be in addition to deductions for inspection by the Engineer as specified elsewhere in these special provisions.

Successful completion of a Department audit does not relieve bidders of the responsibility for furnishing materials or producing finished work of the quality specified in these special provisions and shown on the plans.

Costs incurred as a result of preparing MFSQA forms prior to bid opening shall be considered as included in the cost of preparing bids and no separate payment will be made therefore under the contract. Costs incurred preparing MFSQA forms and Department audits after bid opening shall be considered as included in the various contract items involved and no separate payment will be made therefore, except as provided for below.

The Department has determined the need for the early manufacturing and fabrication shop audit approval. The Contractor shall be reimbursed for each approved Department audit for each shop that fabricates material for each of the following items only:

1. Furnish Structural Steel (Bridge) (Tower)
2. Furnish Structural Steel (Bridge) (Orthotropic Box Girder)
3. Furnish Structural Steel (Bridge) (Saddle)
4. Furnish PWS Cable System
5. Clean and Paint Structural Steel (Tower)
6. Clean and Paint Structural Steel (Orthotropic Box Girder)
7. Clean and Paint Cable System

Payment will be made for each approved Department audit for the above listed items, according to the following schedule.

Calendar days from Contract Award:	Payment amount:
0 - 90	\$100,000
90 - 180	\$75,000
180 - 365	\$45,000

No partial payments will be made for audits approved after one year from Contract Award. Payments shall be considered a partial payment under the various contract items listed above pursuant to the provisions in Section 9-1.06, "Partial Payments" of the Standard Specifications. At no time shall the total partial payment amount for all shop audits for each contract item above exceed 20 percent of the total contract item price. The contract item partial payment shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work as specified herein.

10-1.08 COOPERATION

Attention is directed to Section 5-1.20 "Areas for Contractor's Use" of these Special Provisions, "Construction Details-Areas for Contractor Use" of the project plans, and Section 7-1.14, "Cooperation," and Section 8-1.10, "Utility and Non-Highway Facilities," of the Standard Specifications.

It is anticipated that work by other contractors may be in progress adjacent to or within the limits of this project during progress of the work on this contract. The Contractor shall be responsible for coordinating with other contractors performing work adjacent to or within these contract limits.

Contracts which may be in progress during the working period of this contract, include, but are not necessarily limited to the following:

1. Contract No. 04-012024 constructing San Francisco-Oakland Bay Bridge structures, Route 80, in the City and County of San Francisco and Alameda County, between KP 1.6 (PM 1.0) and KP 1.6 (PM 1.0), adjacent to the eastern limit of the project site.
2. Contract No. 04-0120C4 constructing Pier W2 foundation of Main Span Bridge structures, in the City and County of San Francisco, on Route 80, at Yerba Buena Island at KP 13.2 (PM 8.2)
3. Contract No. 04-0120E4 constructing Piers E2 and T1 foundations of Main Span Bridge structures, in the City and County of San Francisco, on Route 80, at Yerba Buena Island at KP 13.4 (PM 8.3) and at KP 13.8 (PM 8.6)
4. Contract No. 04-0120G4 providing San Francisco-Oakland viaduct retrofit, demolition of the existing Substation and garage, and construction of the new substation and garage, in the City and County of San Francisco, on Route 80, at Yerba Buena Island, between KP 12.6 (PM 7.8) and KP 12.8 (PM 7.9)
5. Contract No. 04-0120P4 reconstructing YBI Structures in the City and County of San Francisco, on Route 80, at Yerba Buena Island, between KP 12.6 (PM 7.8) and KP 13.2 (PM 8.2).
6. Contract No. 04A1701 providing demolition of YBI Buildings No. 30, 40, 270 and 277, in the City and County of San Francisco, adjacent to Route 80, at Yerba Buena Island, between KP 12.8 (PM 7.9) and KP 13.0 (PM 8.0)
7. Contract No. 04-012044 constructing San Francisco-Oakland Bay Bridge approach structure and roadway on Route 80, between the east end of Contract 04-012024 at KP 1.6 (PM 1.0) and San Francisco-Oakland Toll Plaza at KP 3.2 (PM 2.0).
8. Contract No. 04-002974 constructing Toll Operation Building, and ramps, at the south side of the San Francisco-Oakland Toll Plaza, on Route 80, between KP 1.6 (PM 1.0) and KP 3.7 (PM 2.3), in Alameda County.
9. Contract No. 04-014004 constructing Maintenance Buildings and Maintenance roadway access and reconstructing ramps, on Route 80, between KP 1.6 (PM 1.0) and San Francisco-Oakland Toll Plaza at KP 3.7 (PM 2.3), in Alameda County.
10. Contract No. 04-0435V4 providing Seismic Retrofit by Replacement, on Route 80 from West Anchorage San Francisco-Oakland Bay Bridge at KP 7.9 (PM 4.9) to 5th Street On/Off-Ramps at KP 9.5 (PM 5.9), in the City and County of San Francisco.
11. Contract 04-0435C4 providing Seismic Retrofit and Archeology Investigation, on Route 80, on Route 80 from West Anchorage San Francisco-Oakland Bay Bridge at KP 7.9 (PM 4.9) to 5th Street On/Off-Ramps at KP 9.5 (PM 5.9), in the City and County of San Francisco.
12. Contract No. 04-0435S4 providing Seismic Retrofit, on Route 80 from 0.2 Mile East of San Francisco Anchorage San Francisco-Oakland Bay Bridge at KP 9.3 (PM 5.8) to Yerba Buena Anchorage San Francisco-Oakland Bay Bridge at KP 12.2 (PM 7.6), in the City and County of San Francisco.
13. Contract No. 04-0435U4 providing Seismic Retrofit, on Route 80 from 0.2 Mile West of San Francisco Anchorage San Francisco-Oakland Bay Bridge at KP 8.9 (PM 5.5) to East End of Yerba Buena Tunnel at KP 12.6 (PM 7.8), in the City and County of San Francisco.

14. Contract No. 04-0120Q4 constructing United States Coast Guard Road Relocation, Building No. 75 Demolition, Utility Relocation and Archaeological Recovery in the City and County of San Francisco, on Route 80, at Yerba Buena Island, between KP 12.7 (PM 7.9) and KP 13.0 (PM 8.1).
15. Contract No. 04-0120R4 constructing the YBI South-South Detour in the City and County of San Francisco, on Route 80, at Yerba Buena Island, between KP 12.6 (PM 7.8) and KP 13.2 (PM 8.2).

Progress schedules for the above contracts, when available, may be inspected by the Contractor. Such progress schedules are tentative and no guarantee can be made by the State that such work will actually be performed as indicated by the schedules.

Furthermore, the Contractor shall be responsible for coordinating with other contractors, agencies or their authorized personnel or representative performing work within these contract limits. This includes:

1. Work by State forces will be in progress within the contract limits during the working period of this contract.
2. Work by Biological Monitoring Contractor and its authorized representatives and personnel will be engaged in monitoring biological activities resulting from the State's entering into agreements with and securing permits from various Local, State and Federal agencies as specified in these special provisions.

10-1.185 ESTABLISH MARINE ACCESS

This work shall consist of furnishing, erecting, maintaining and removing barges, trestles and other facilities to provide marine access to the job site. This work shall be separate from and in addition to the work specified in Section 11, "Mobilization," of the Standard Specifications.

The Contractor may construct an access trestle for access to the jobsite in accordance with the permits obtained by the Department and these special provisions.

The Contractor shall submit, for approval by the Engineer, in accordance with the provisions in "Working Drawings," of these special provisions, calculations and working drawings of any access trestle and other temporary facilities that are to be constructed. The Contractor shall allow the Engineer 50 calendar days to review and approve the working drawings and supplemental calculations. If revisions are required, as determined by the Engineer, the Contractor shall revise and resubmit the working drawings and calculations within 10 working days of receipt of the Engineer's comments and shall allow 15 working days for the Engineer to review the revisions.

The Contractor shall submit, for approval by the Engineer, a schedule of values detailing the cost breakdown of the contract lump sum item for establish marine access. The schedule of values shall reflect the items, work, quantities and costs required to establish marine access to the job site, including as a minimum: initial mobilization of marine access facilities, monthly facility and equipment rental, monthly maintenance, and demobilization. The Contractor shall be responsible for the accuracy of the quantities and costs used in the schedule of values submitted for approval.

The sum of the amounts for the items and work listed in the schedule of values shall be equal to the contract lump sum price for establish marine access.

The schedule of values for establish marine access shall be submitted to the Engineer within the time required for submittal of the Interim Baseline Schedule, as specified in "Progress Schedule (Critical Path)" of these special provisions.

When approved in writing by the Engineer, the schedule of values will be used to determine progress payments for establish marine access during the progress of the work. No partial payment for establish marine access will be made until the schedule of values is approved in writing by the Engineer.

The contract lump sum price paid for establish marine access shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in establishing marine access to the job site, as specified in the Standard Specifications and these special provisions, and as directed by the Engineer.

The adjustment provisions in Section 4-1.03C, "Changes," of the Standard Specifications shall not apply to the contract lump sum price for establish marine access. Full compensation for damages due to delays shall be considered as included in the payments made in accordance with "Time-Related Overhead" of these special provisions and Section 8-1.09, "Right of Way Delays," of the Standard Specifications and no additional compensation will be allowed therefor.

10-1.62 CLEAN AND PAINT STRUCTURAL STEEL

Exposed new metal surfaces, except where galvanized or metallized, shall be cleaned and painted in conformance with the provisions in Section 59-2, "Painting Structural Steel," and Section 91, "Paint," of the Standard Specifications and these special provisions. Exposed surfaces include all surfaces exposed to the atmosphere.

Whenever the Standard Specifications refer to "Steel Structures Painting Council," the reference shall be replaced with "SSPC: The Society for Protective Coatings."

Attention is directed to "Metallizing" of these special provisions for surface coating the inside of saddle troughs.

The Contractor shall provide suitable enclosures to permit cleaning and painting during inclement weather. Provisions shall be made to control atmospheric conditions inside the enclosures within limits suitable for cleaning throughout the cleaning operation, painting throughout the painting operation, drying throughout the drying period to solvent insolubility, and throughout the curing period per the manufacturers' recommendations and these special provisions. Full compensation for providing and maintaining such enclosures shall be considered as included in the prices paid for the various contract items of work requiring paint and no additional compensation will be allowed therefor.

No extension of contract time will be granted and no additional compensation will be allowed as a result of temperature or humidity which exceeds the limits for cleaning or painting designated herein, except as approved by the Engineer.

APPLICATION

Fresh water shall be used for water rinsing operations. Water from water rinsing operations shall not be permitted to enter the bay, fall on public traffic, flow across shoulders or lanes occupied by public traffic, or to flow into gutter or other drainage facilities.

Prior to submitting the Painting Quality Work Plan (PQWP) required herein, a pre-painting meeting between the Engineer, the Contractor's QCM, a representative from each entity performing painting for this project, and a representative from the manufacturer to provide the paint, shall be held to discuss the requirements for the Painting Quality Work Plan.

Prior to performing any painting or paint removal, the Contractor shall submit to the Engineer, in conformance with the provisions in "Working Drawings," of these special provisions, 3 copies of a separate Painting Quality Work Plan (PQWP) for each item of work for which painting or paint removal is to be performed. As a minimum, each PQWP shall include the following:

- A. The name of each entity performing painting or paint removal.
- B. One copy each of all current "SSPC: The Society for Protective Coatings" specifications or qualification procedures which are applicable to the painting or paint removal to be performed. These documents shall become the permanent property of the Department.
- C. A copy of the manufacturer's guidelines and recommendations for cleaning, painting, drying, curing, handling, shipping, and storage of the product.
- D. Proposed methods and equipment to be used for any paint application.
- E. Proof of each of any required certifications, SSPC-QP 1, SSPC-QP 2, SSPC-QP 3.
- F. Proposed methods to control environmental conditions in accordance with the manufacturer's recommendations and these special provisions.
- G. Proposed method to protect the product during curing, shipping, handling, and storage.
- H. For finish coat PQWP's, the manufacturer's written recommendations on chloride testing methods, maximum allowable chloride levels, and surface preparation prior to applying the finish coat.

The Engineer shall have 10 working days to review the PQWP submittal after a complete plan has been received. No painting or paint removal shall be performed until the PQWP for that work is accepted by the Engineer.

It is expressly understood that the Engineer's review of the Contractor's PQWP shall not relieve the Contractor of any responsibility under the contract for the successful completion of the work in conformity with the requirements of the plans and specifications. The Engineer's review shall not constitute a waiver of any of the requirements of the plans and specifications nor relieve the Contractor of any obligation thereunder, and defective work, materials, and equipment may be rejected notwithstanding review of the PQWP.

CLEANING

Exposed new metal surfaces shall be dry blast cleaned in conformance with the requirements in Surface Preparation Specification No. 10, "Near White Blast Cleaning," of the "SSPC: The Society for Protective Coatings." Blast cleaning shall leave surfaces with a dense, uniform, sharp angular anchor pattern of not less than 40 μm nor more than 86 μm as measured in conformance with the requirements in ASTM Designation: D 4417.

Mineral and slag abrasives used for blast cleaning steel shall conform to the requirements in Abrasive Specification No. 1, "Mineral and Slag Abrasives," of the "SSPC: The Society for Protective Coatings" and shall not contain hazardous material. Mineral and slag abrasives shall comply with the requirements for Class A, Grade 2 to 3 as defined therein.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications and a Material Safety Data Sheet shall be furnished prior to use for each shipment of blast cleaning material for steel.

The inside surfaces of bolt holes shall be cleaned in conformance with the requirements in Surface Preparation Specification No. 1, "Solvent Cleaning," of the "SSPC: The Society for Protective Coatings," and visible rust shall be removed.

PAINTING

Blast cleaned surfaces shall receive a single undercoat and, unless otherwise specified, a minimum of 2 finish coats of an exterior grade latex paint supplied by the manufacturer of the inorganic zinc coating. The surface of the undercoat or the topcoat that is to be covered shall be free from moisture, visible dust, visible grease, or other deleterious materials.

The single undercoat shall consist of an inorganic zinc coating conforming to the requirements in AASHTO Designation M 300, Type I- or Type II, except that: 1) the first 3 sentences of Section 5.6, "Primer Field Performance Requirements," shall not apply for Type II coatings and the entire Section 5.6.1 shall not apply for either type of inorganic zinc coating.

If the Contractor proposes a Type I coating, the Contractor shall furnish to the Engineer for approval documentation as required in Section 5.6 of AASHTO Designation M300. The Contractor shall allow the Engineer 60 working days to review the proposal.

If the Contractor proposes to use a type II coating, the coating shall be chosen from the qualified products list, which may be obtained from the Transportation Laboratory.

The inside surfaces of bolt holes shall be painted with one application of a zinc rich primer (organic vehicle type) after the application of the undercoat of inorganic zinc on adjacent steel. Finish coats are not required for the inside surfaces of bolt holes.

Inorganic zinc coating shall be used within 12 hours of initial mixing.

Application of inorganic zinc coating shall conform to the provisions for applying zinc-rich coating in Section 59-2.13, "Application of Zinc-Rich Primer," of the Standard Specifications.

Inorganic zinc coating shall not be applied when the atmospheric or surface temperature is less than 7°C nor more than 29°C, nor when the relative humidity exceeds 85 percent.

The single undercoat of inorganic zinc coating shall be applied to the required dry film thickness in 2 or more applications within 4 hours after blast cleaning.

The total dry film thickness of all applications of the inorganic zinc undercoat, including the surfaces of outside existing members within the grip under bolt heads, nuts and washers, shall be not less than 90 μm nor more than 150 μm , except that the total dry film thickness on each faying (contact) surface of high strength bolted connections shall be between 25 μm and the maximum allowable dry film thickness for Class B coatings as determined by certified testing in conformance with Appendix A of the "Specification for Structural Joints Using ASTM A325 or A490 Bolts" of the Research Council on Structural Connections (RCSC Specification). Unless otherwise stated, all inorganic zinc coatings used on faying surfaces shall meet the slip coefficient requirements for a Class B coating on blast-cleaned steel, as specified in the RCSC Specification. The Contractor shall provide results of certified testing showing the maximum allowable dry film thickness for the Class B coating from the qualifying tests for the coating he has chosen, and shall maintain the coating thickness on actual faying surfaces of the structure at or below this maximum allowable coating thickness.

Areas where mudcracking occurs in the inorganic zinc coating shall be blast cleaned and repainted with inorganic zinc coating to the specified thickness.

Dry spray, or overspray, as defined in the Steel Structures Painting Manual, Volume 1, "Good Painting Practice," of the "SSPC: The Society for Protective Coatings," shall be removed prior to application of subsequent coats or final acceptance. Removal of dry spray shall be by screening or other methods that minimize polishing of the inorganic zinc surface. The dry film thickness of the coating after removal of dry spray shall be in conformance with the provisions for applying the single undercoat, as specified herein.

The inorganic zinc coating shall be tested for adhesion and chlorides. Additional testing as defined in this section shall also be required for water borne inorganic zinc and solvent borne inorganic zinc primers. The locations of the tests will be determined by the Engineer. The sequence of the rinsing and testing operations shall be determined by the Contractor. The testing for adhesion will be performed no sooner than 72 hours after application of the single undercoat of inorganic zinc coating. At the Contractor's expense, satisfactory access shall be provided to allow the Engineer to determine the location of the tests.

The following tests shall be performed on both water borne inorganic zinc primers and solvent borne inorganic zinc primers:

1. Adhesion

The inorganic zinc coating shall have a minimum adhesion to steel of 4 MPa. Testing shall be performed at a minimum frequency of 1 test per 100 square meters of painted area using a self-aligning adhesion tester in conformance with the requirements in ASTM Designation: D 4541. The Contractor, at the Contractor's expense, shall: (1) verify compliance with the adhesion requirements, (2) furnish test results to the Engineer, and (3) repair the coating after testing.

2. Chlorides and Water Rinsing

Except as approved by the Engineer, a minimum curing time of 72 hours shall be allowed between application of inorganic zinc coating and water rinsing.

All areas of inorganic zinc coating, where finish coats are specified, shall be water rinsed in conformance with the requirements in Section 59-1.03 "Application," of the Standard Specifications and these special provisions. Areas of the coating that are removed by the water rinsing shall be reapplied in conformance with the provisions for applying zinc-rich coating in Section 59-2.13, "Application of Zinc-Rich Primer," of the Standard Specifications and these special provisions.

All areas of inorganic zinc coating, where finish coats are specified, shall be tested by the Contractor for soluble salts in conformance with the requirements in SSPC: The Society for Protective Coatings Technical Update No. 4, "Field Methods for Retrieval and Analysis of Soluble Salts on Substrates" and cleaned, if necessary, so that the maximum level of chlorides does not exceed the lesser of the manufacturer's written recommendations or 10 micrograms per square centimeter. Areas of inorganic zinc coating shall be tested for chlorides at the rate of one test per 200 square meters or part thereof at locations chosen by the Engineer. If chloride levels exceed the maximum allowed by these special provisions, the entire 200 square meter area represented by the testing will be rejected. The Contractor shall perform additional cleaning and testing of rejected areas until chloride levels conform to these requirements.

Finish coats shall be applied to areas passing the chloride tests within 48 hours.

Additional Requirements for Water Borne Inorganic Zinc Primers

1. Dry to solvent insolubility for water borne inorganic zinc primers shall be determined in conformance with the requirements in ASTM Designation: D4752, "Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub" except that water shall be the solvent. The resistance rating shall not be less than 4, "Burnished appearance in rubbed area; slight amount of zinc on cloth after 50 double rubs." The Contractor shall maintain suitable enclosures to protect the inorganic zinc coating from damage caused by the environment until the coating passes this test and is fully cured per the manufacturer's written recommendations.
2. Each application of undercoat and topcoats shall be thoroughly cured in accordance with the manufacturers written recommendations and any skips, holidays, thin areas, or other deficiencies shall be corrected before the application of the next coat.

3. The surface pH of the inorganic zinc primer shall be checked in conformance with ASTM Designation: D4262 by wetting the surface with deionized water for a minimum of 15 minutes and no longer than 30 minutes and applying pH paper with a capability of measuring in increments of 0.5 pH units. Application of finish coats will not be permitted until the surface pH is less than 8.
4. The inorganic zinc coating shall exhibit a solid, hard, and polished metal surface when firmly scraped with the knurled edge of a quarter. Inorganic zinc coating that is powdery, soft, or does not exhibit a polished metal surface, as determined by the Engineer, shall be repaired by the Contractor, at the Contractor's expense, by blast cleaning and repainting with inorganic zinc coating to the specified thickness.
5. Steel painted with water borne inorganic zinc primer shall be protected at all times from water immersion conditions during curing, shipping, and storage. Water immersion conditions are defined as standing water or continuous contact with wet materials for periods in excess of 30 minutes. Damage caused due to immersion conditions shall be repaired by the Contractor, at the Contractor's expense, by blast cleaning and repainting with inorganic zinc coating to the specified thickness.

Additional Requirements for Solvent Borne Inorganic Zinc Primers

1. Dry to solvent insolubility for solvent borne inorganic zinc primers shall be determined in conformance with the requirements in ASTM Designation: D4752, "Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub." The resistance rating shall not be less than 4, "Burnished appearance in rubbed area; slight amount of zinc on cloth after 50 double rubs." The Contractor shall maintain suitable enclosures to protect the inorganic zinc coating from damage caused by the environment until the coating passes this test and is fully cured per the manufacturer's written recommendations.
2. Each application of undercoat and topcoats shall be thoroughly cured in accordance with the manufacturers written recommendations and any skips, holidays, thin areas, or other deficiencies shall be corrected before the application of the next coat.
3. The inorganic zinc coating shall exhibit a solid, hard, and polished metal surface when firmly scraped with the knurled edge of a quarter. Inorganic zinc coating that is powdery, soft, or does not exhibit a polished metal surface, as determined by the Engineer, shall be repaired by the Contractor, at the Contractor's expense, by blast cleaning and repainting with inorganic zinc coating to the specified thickness.

Except as noted, exterior surfaces of undercoated areas and bolts shall receive a minimum of 2 finish coats of an exterior grade latex paint supplied by the manufacturer of the inorganic zinc coating. Exterior surfaces are defined as steel surfaces undercoated with inorganic zinc, which are visible in the finished work from the outside of the bridge.

Finish coats will not be required on exterior surfaces receiving an overlay.

Finish coats are not required on interior surfaces. Interior surfaces are defined as steel surfaces undercoated with inorganic zinc not visible from the outside of the bridge and include, but are not limited to, the inside surfaces of the box girder, crossbeam and tower shafts.

The first finish coat shall be applied within 48 hours following the water rinsing and passing the chloride testing as specified previously in this section.

The finish coat paint shall be formulated for application to inorganic zinc coating and shall conform to the following:

A.

Property	Value	ASTM Designation
Pigment content, percent	24 max.	D 3723
Nonvolatile content, mass percent	49 min.	D 2369
Viscosity, KU	75 min. to 90 max.	D 562
Fineness of dispersion, Hegman	6 min.	D 1210
Drying time at 25°C, 50% RH, 100-µm wet film		D 1640
Set to touch, minutes	30 max.	
Dry through, hours	1 max.	
Adhesion	4A	D 3359, Procedure A

- B. No visible color change in the finish coats shall occur when tested in conformance with the requirements in ASTM Designation: G 53 using FS 40 UV-B bulbs for a minimum of 38 cycles. The cycle shall be 4 hours of ultraviolet (UV) exposure at 60° C and 4 hours of condensate exposure at 40° C.
- C. The vehicle shall be an acrylic or modified acrylic copolymer with a minimum of necessary additives.

The first finish coat shall be applied in 2 applications. The first application shall consist of a spray applied mist application. The second application shall be applied after the mist application has dried to a set to touch condition as determined by the procedure described in Section 7 of ASTM Designation: D1640. The first finish coat color shall match Federal Standard 595B No. 36628. The total dry film thickness of both applications of the first finish coat shall be not less than 50 µm.

Except as approved by the Engineer, a minimum drying time of 12 hours shall be allowed between finish coats.

The second finish coat color shall match Federal Standard 595B, No. 26408. The total dry film thickness of the applications of the second finish coat shall be not less than 50 µm.

The 2 finish coats shall be applied in 3 or more applications to a total dry film thickness of not less than 100 µm nor more than 200 µm.

The total dry film thickness of all applications of inorganic zinc coating and finish coat paint shall be not less than 190 µm nor more than 350 µm.

PAYMENT

Payment for clean and paint structural steel shall conform to the provisions in Section 59-2.16, "Payment," of the Standard Specifications and these special provisions.

Cleaning and painting structural steel, of the types listed in the Engineer's Estimate, will be paid for on the basis of lump sum price.

Full compensation for water rinsing and conforming to the requirements for testing outlined in these special provisions, including providing access for testing and repairing painted surfaces, shall be considered as included in the contract lump sum price paid for clean and paint structural steel of the types listed in the Engineer's Estimate and no additional compensation will be allowed therefor.

10-1.63 CLEAN AND PAINT STRUCTURAL STEEL (MODULAR JOINT SEAL ASSEMBLY, SPHERICAL BUSHING BEARING, AND SHEAR KEY)

Clean and paint structural steel in this section shall consist of cleaning and painting the following structural steel components:

- A. Modular Joint Seal Assemblies
- B. Spherical Bushing Bearing at Pier E2
- C. Shear Key at Pier E2
- D. Spherical bushing ring bearing at Hinge K

Exposed new metal surfaces, except where galvanized, shall be cleaned and painted in conformance with the provisions in Section 59-2, "Painting Structural Steel," and Section 91, "Paint," of the Standard Specifications and these special provisions.

Prior to submitting the Painting Quality Work Plan (PQWP) required herein, a pre-painting meeting between the Engineer, the Contractor's QCM, a representative from each entity performing painting for this project, and a representative from the manufacturer to provide the paint, shall be held to discuss the requirements for the Painting Quality Work Plan.

Prior to performing any painting or paint removal, the Contractor shall submit to the Engineer, in conformance with the provisions in Section "Working Drawings," elsewhere in these special provisions, 3 copies of a separate Painting Quality Work Plan (PQWP) for each item of work for which painting or paint removal is to be performed. As a minimum, each PQWP shall include the following:

- A. The name of each Contractor or subcontractor to be used.
- B. One copy each of all current "SSPC: The Society for Protective Coatings" specifications or qualification procedures which are applicable to the painting or paint removal to be performed. These documents shall become the permanent property of the Department.
- C. A copy of the manufacturer's guidelines and recommendations for cleaning, painting, drying, curing, handling, shipping, and storage of the product.
- D. Proposed methods and equipment to be used for any paint application.
- E. Proof of each of any required certifications, SSPC-QP 1, SSPC-QP 2, SSPC-QP 3.
- F. Proposed methods to control environmental conditions in accordance with the manufacturer's recommendations and these special provisions.
- G. Proposed method to protect the product during curing, shipping, handling, and storage.

The Engineer shall have 10 working days to review the PQWP submittal after a complete plan has been received. No painting or paint removal shall be performed until the PQWP for that work is reviewed by the Engineer. Should the Engineer fail to complete the review within this time allowance and if, in the opinion of the Engineer, the Contractor's controlling operation is delayed or interfered with by reason of the delay in reviewing the PQWP, the delay will be considered a right of way delay in conformance with the provisions in Section 8-1.09, "Right of Way Delays," of the Standard Specifications.

Conformance with the requirements in SSPC-QP 1, SSPC-QP 2, and SSPC-QP 3 of the "SSPC: The Society for Protective Coatings" will not be required for modular joint seal assemblies.

CLEANING

Exposed new metal surfaces shall be dry blast cleaned in conformance with the requirements in Surface Preparation Specification No. 10, "Near White Blast Cleaning," of the "SSPC: The Society for Protective Coatings." Blast cleaning shall leave surfaces with a dense, uniform, sharp, angular anchor pattern of not less than 40 μm nor more than 86 μm as measured in conformance with the requirements in ASTM Designation: D 4417.

Mineral and slag abrasives used for blast cleaning steel shall conform to the requirements in Abrasive Specification No. 1, "Mineral and Slag Abrasives," of the "SSPC: The Society for Protective Coatings" and shall not contain hazardous material. Mineral and slag abrasives shall comply with the requirements for Class A, Grade 2 to 3 as defined therein.

A Certificate of Compliance conforming to the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications and a Material Safety Data Sheet shall be furnished prior to use for each shipment of blast cleaning material for steel.

PAINTING

Blast cleaned surfaces shall receive a single undercoat, and a final coat where specified of an inorganic zinc coating conforming to the requirements in AASHTO Designation M 300, Type 1- or Type II, except that: 1) the first 3 sentences of Section 5.6, "Primer Field Performance Requirements," shall not apply for Type II coatings and the entire Section 5.6.1 shall not apply for either type of inorganic zinc coating.

If the Contractor proposes a Type I coating, the Contractor shall furnish to the Engineer for approval documentation as required in Section 5.6 of AASHTO Designation M300. The Contractor shall allow the Engineer 60 working days to review the proposal.

If the Contractor proposes to use a Type II coating, the coating shall be chosen from the qualified products list, which may be obtained from the Transportation Laboratory.

The inside surfaces of bolt holes shall be painted with one application of a zinc rich primer (organic vehicle type) after the application of the undercoat of inorganic zinc on adjacent steel. Finish coats are not required for the inside surfaces of bolt holes.

Inorganic zinc coating shall be used within 12 hours of initial mixing.

Application of inorganic zinc coating shall conform to the provisions for applying zinc-rich coating in Section 59-2.13, "Application of Zinc-Rich Primer," of the Standard Specifications.

Inorganic zinc coating shall not be applied when the atmospheric or surface temperature is less than 7°C nor more than 29°C, nor when the relative humidity exceeds 85 percent.

The single undercoat of inorganic zinc coating shall be applied to the required dry film thickness in 2 or more applications within 4 hours after blast cleaning.

The total dry film thickness of all applications of the inorganic zinc undercoat, including the surfaces of outside existing members within the grip under bolt heads, nuts and washers, shall be not less than 90 µm nor more than 150 µm, except that the total dry film thickness on each faying (contact) surface of high strength bolted connections shall be between 25 µm and the maximum allowable dry film thickness for Class B coatings as determined by certified testing in conformance with Appendix A of the "Specification for Structural Joints Using ASTM A325 or A490 Bolts" of the Research Council on Structural Connections (RCSC Specification). Unless otherwise stated, all inorganic zinc coatings used on faying surfaces shall meet the slip coefficient requirements for a Class B coating on blast-cleaned steel, as specified in the RCSC Specification. The Contractor shall provide results of certified testing showing the maximum allowable dry film thickness for the Class B coating from the qualifying tests for the coating he has chosen, and shall maintain the coating thickness on actual faying surfaces of the structure at or below this maximum allowable coating thickness.

Areas where mudcracking occurs in the inorganic zinc coating shall be blast cleaned and repainted with inorganic zinc coating to the specified thickness.

Dry spray, or overspray, as defined in the Steel Structures Painting Manual, Volume 1, "Good Painting Practice," of the "SSPC: The Society for Protective Coatings," shall be removed prior to application of subsequent coats or final acceptance. Removal of dry spray shall be by screening or other methods that minimize polishing of the inorganic zinc surface. The dry film thickness of the coating after removal of dry spray shall be in conformance with the provisions for applying the single undercoat, as specified herein.

The inorganic zinc coating shall be tested for adhesion. Additional testing as defined in this section shall also be required for water borne inorganic zinc and solvent borne inorganic zinc primers. The locations of the tests will be determined by the Engineer. The sequence of the rinsing and testing operations shall be determined by the Contractor. The testing for adhesion will be performed no sooner than 72 hours after application of the single undercoat of inorganic zinc coating. At the Contractor's expense, satisfactory access shall be provided to allow the Engineer to determine the location of the tests.

The following test shall be performed on both water borne inorganic zinc primers and solvent borne inorganic zinc primers:

1. Adhesion

The inorganic zinc coating shall have a minimum adhesion to steel of 4 MPa. Testing shall be performed at a minimum frequency of 1 test per 100 square meters of painted area using a self-aligning adhesion tester in conformance with the requirements in ASTM Designation: D 4541. The Contractor, at the Contractor's expense, shall: (1) verify compliance with the adhesion requirements, (2) furnish test results to the Engineer, and (3) repair the coating after testing.

Additional Requirements for Water Borne Inorganic Zinc Primers

1. Dry to solvent insolubility for water borne inorganic zinc primers shall be determined in conformance with the requirements in ASTM Designation: D4752, "Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub" except that water shall be the solvent. The resistance rating shall not be less than 4, "Burnished appearance in rubbed area; slight amount of zinc on cloth after 50 double rubs." The Contractor shall maintain suitable enclosures to protect the inorganic zinc coating from damage caused by the environment until the coating passes this test and is fully cured per the manufacturer's written recommendations.
2. Each application of undercoat and topcoats shall be thoroughly cured in accordance with the manufacturers written recommendations and any skips, holidays, thin areas, or other deficiencies shall be corrected before the application of the next coat.
3. The surface pH of the inorganic zinc primer shall be checked in conformance with ASTM Designation: D4262 by wetting the surface with deionized water for a minimum of 15 minutes and no longer than 30 minutes and applying pH paper with a capability of measuring in increments of 0.5 pH units. Application of finish coats will not be permitted until the surface pH is less than 8.
4. The inorganic zinc coating shall exhibit a solid, hard, and polished metal surface when firmly scraped with the knurled edge of a quarter. Inorganic zinc coating that is powdery, soft, or does not exhibit a polished metal surface, as determined by the Engineer, shall be repaired by the Contractor, at the Contractor's expense, by blast cleaning and repainting with inorganic zinc coating to the specified thickness.
5. Steel painted with water borne inorganic zinc primer shall be protected at all times from water immersion conditions during curing, shipping, and storage. Water immersion conditions are defined as standing water or continuous contact with wet materials for periods in excess of 30 minutes. Damage caused due to immersion conditions shall be repaired by the Contractor, at the Contractor's expense, by blast cleaning and repainting with inorganic zinc coating to the specified thickness.

Additional Requirements for Solvent Borne Inorganic Zinc Primers

1. Dry to solvent insolubility for solvent borne inorganic zinc primers shall be determined in conformance with the requirements in ASTM Designation: D4752, "Standard Test Method for Measuring MEK Resistance of Ethyl Silicate (Inorganic) Zinc-Rich Primers by Solvent Rub." The resistance rating shall not be less than 4, "Burnished appearance in rubbed area; slight amount of zinc on cloth after 50 double rubs." The Contractor shall maintain suitable enclosures to protect the inorganic zinc coating from damage caused by the environment until the coating passes this test and is fully cured per the manufacturer's written recommendations.
2. Each application of undercoat and topcoats shall be thoroughly cured in accordance with the manufacturers written recommendations and any skips, holidays, thin areas, or other deficiencies shall be corrected before the application of the next coat.
3. The inorganic zinc coating shall exhibit a solid, hard, and polished metal surface when firmly scraped with the knurled edge of a quarter. Inorganic zinc coating that is powdery, soft, or does not exhibit a polished metal surface, as determined by the Engineer, shall be repaired by the Contractor, at the Contractor's expense, by blast cleaning and repainting with inorganic zinc coating to the specified thickness.

The color of the final application of inorganic zinc coating shall match Federal Standard 595B No. 36373.

The final coat of inorganic zinc coating shall be applied after testing for adhesion, testing for solvent insolubility, and completion of all operations that may damage or discolor the steel surface, including correction of runs, sags, thin and excessively thick areas in the paint film, skips and holidays, dry spray, or areas of non-uniform appearance.

The area to receive the final coat of inorganic zinc coating shall be lightly roughened by abrasive blasting using an abrasive no larger than 600 μm . Abrasive blasting shall remove no more than 15 μm of inorganic zinc. The surface to be lightly roughened shall be free from moisture, dust, grease or deleterious material. The undercoated areas of the under surfaces of bottom flanges shall be protected from abrasive blast cleaning operations.

The final coat of inorganic zinc coating shall be applied to the required dry film thickness in one uniform application within 24 hours after light roughening. The dry film thickness of the final coat shall be not less than 25 μm nor more than 75 μm .

Except at bolted connections, the total dry film thickness of all applications of the single undercoat and final coat of inorganic zinc coating shall be not less than 115 μm nor more than 225 μm .

Finish coats will not be required.

PAYMENT

Full compensation for clean and paint structural steel for modular joint seal assembly shall be considered as included in the contract price paid per meter for modular joint seal assemblies of types and locations listed in the various contract items of work and no separate payment will be made therefor.

Full compensation for clean and paint structural steel for spherical bushing bearing at Pier E2 shall be considered as included in the contract unit price paid for furnish and install spherical bushing bearing (Pier E2) and no separate payment will be made therefor.

Full compensation for clean and paint structural steel for shear key at Pier E2 shall be considered as included in the contract unit price paid for furnish and install shear key (Pier E2) and no separate payment will be made therefor.

Full compensation for clean and paint structural steel for spherical bushing ring bearing at Hinge K shall be considered as included in the contract unit price paid for furnish spherical bushing ring bearing (Hinge K) and no separate payment will be made therefor.

10-1.745 BIKEPATH RAILING

Bikepath railing shall conform to the provisions in Section 83-1.02G(2), "Metal Railing (Tubular)," of the Standard Specifications and these special provisions.

Posts shall conform to the requirements in ASTM designation: A500, Grade C.

Stainless steel plates shall conform to the requirements in designation: ASTM A167, Type 316.

Stainless steel bolts shall conform to the requirements in designation: ASTM F593, Group 2, Type 316 or 316L.

Railing grill shall conform to the provisions in Section 56-1.02F, "Steel Walkway Gratings," of the Standard Specifications.

Welding of structural steel shall conform to the requirements of AWS D1.1. Welding of structural steel to stainless steel shall conform to the requirements of AWS D1.6.

When a weld overlay is used for stainless steel surfacing, the overlay shall be placed by submerged arc welding using Type 309L electrodes. The finished overlay shall have a 2.38 mm minimum thickness after welding, grinding and polishing. Prior to welding, the manufacturer must submit a complete weld procedure to the Engineer for approval.

The Contractor shall submit shop drawings in conformance to the provisions in "Working Drawings," of these special provisions.

Bikepath railing will be measured and paid for by the meter in the same manner specified for railing in Sections 83-1.03, "Measurement," and 83-1.04, "Payment," of the Standard Specifications.

ENGINEER'S ESTIMATE
ALTERNATIVE 1 FOREIGN STEEL AND IRON ALTERNATIVE
04-0120F4

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	030748	WORKING DRAWING CAMPUS	LS	LUMP SUM	LUMP SUM	
2	030702	ELECTRONIC MOBILE DAILY DIAIRY COMPUTER SYSTEM DATA DELIVERY	LS	LUMP SUM	LUMP SUM	
3	BLANK					
4	030704	EROSION CONTROL (TYPE B)	M2	1570		
5	070010	PROJECT SCHEDULE (CRITICAL PATH)	LS	LUMP SUM	LUMP SUM	
6	070018	TIME-RELATED OVERHEAD	WDAY	1429		
7	071322	TEMPORARY FENCE (TYPE CL-1.8)	M	205		
8	030705	3.66 M TEMPORARY GATE (TYPE CL-1.8)	EA	1		
9	049281	FURNISH AND REMOVE TEMPORARY TOWER (AE)	LS	LUMP SUM	LUMP SUM	
10	049282	FURNISH AND REMOVE TEMPORARY TOWER (AW)	LS	LUMP SUM	LUMP SUM	
11	049283	FURNISH AND REMOVE TEMPORARY TOWER (BE)	LS	LUMP SUM	LUMP SUM	
12	049284	FURNISH AND REMOVE TEMPORARY TOWER (BW)	LS	LUMP SUM	LUMP SUM	
13	049285	FURNISH AND REMOVE TEMPORARY TOWER (CE)	LS	LUMP SUM	LUMP SUM	
14	049286	FURNISH AND REMOVE TEMPORARY TOWER (CW)	LS	LUMP SUM	LUMP SUM	
15	049287	FURNISH AND REMOVE TEMPORARY TOWER (DE)	LS	LUMP SUM	LUMP SUM	
16	049288	FURNISH AND REMOVE TEMPORARY TOWER (DW)	LS	LUMP SUM	LUMP SUM	
17	049289	FURNISH AND REMOVE TEMPORARY TOWER (E2E)	LS	LUMP SUM	LUMP SUM	
18	049290	FURNISH AND REMOVE TEMPORARY TOWER (E2W)	LS	LUMP SUM	LUMP SUM	
19	049291	FURNISH AND REMOVE TEMPORARY TOWER (FE)	LS	LUMP SUM	LUMP SUM	
20	049292	FURNISH AND REMOVE TEMPORARY TOWER (FW)	LS	LUMP SUM	LUMP SUM	

**ALTERNATIVE 1
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	203021	FIBER ROLLS	M	252		
42	203024	COMPOST (EROSION CONTROL)	KG	470		
43	030711	MOVE IN/OUT (EROSION CONTROL)	EA	4		
44	203045	PURE LIVE SEED (EROSION CONTROL)	KG	30		
45 (S)	049299	EPOXY ASPHALT CONCRETE AGGREGATE	TONN	3350		
46 (S)	049300	EPOXY ASPHALT BOND COAT AND BINDER	KG	244 000		
47 (S)	049301	APPLY EPOXY ASPHALT BOND COAT	M2	29 914		
48 (S)	049302	PLACE EPOXY ASPHALT CONCRETE SURFACING	M2	29 914		
49 (S)	049303	PRESTRESSING CAST-IN-PLACE CONCRETE (PIER W2)	LS	LUMP SUM	LUMP SUM	
50 (S)	049304	PRESTRESSING CAST-IN-PLACE CONCRETE (PIER E2)	LS	LUMP SUM	LUMP SUM	
51 (S)	049305	HIGH STRENGTH PRESTRESSING ROD (75 MM)	LS	LUMP SUM	LUMP SUM	
52 (S)	049306	CABLE TIEDOWN	LS	LUMP SUM	LUMP SUM	
53 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	8200		
54 (F)	049307	STRUCTURAL CONCRETE, FENDER	M3	1204		
55 (F)	049308	MINOR CONCRETE (COUNTERWEIGHT)	M3	430		
56 (S-F)	049309	FURNISH POLYESTER CONCRETE OVERLAY (13 MM)	M3	40		
57 (S-F)	049310	PLACE POLYESTER CONCRETE OVERLAY (13 MM)	M2	3050		
58 (S)	049311	FURNISH AND INSTALL SPHERICAL BUSHING BEARING (PIER E2)	EA	4		
59 (S)	049312	FURNISH AND INSTALL SPHERICAL BUSHING RING BEARING (HINGE K)	EA	4		
60 (S)	049313	INSTALL CIRCULAR SEGMENTED BEARING (HINGE A)	EA	16		

**ALTERNATIVE 1
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61 (S)	519123	JOINT SEAL (TYPE B - MR 50 MM)	M	56		
62 (S)	049347	MODULAR JOINT SEAL ASSEMBLY (HINGE KW)	M	25		
63 (S)	049348	MODULAR JOINT SEAL ASSEMBLY (HINGE KE)	M	25		
64 (S)	049349	MODULAR JOINT SEAL ASSEMBLY (HINGE AW)	M	25		
65 (S)	049350	MODULAR JOINT SEAL ASSEMBLY (HINGE AE)	M	25		
66 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	KG	1 410 000		
67 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	KG	140 370		
68 (F)	550203	FURNISH STRUCTURAL STEEL (BRIDGE)	KG	183 000		
69 (F)	550204	ERECT STRUCTURAL STEEL (BRIDGE)	KG	183 000		
70 (F)	049314	FURNISH STRUCTURAL STEEL (BRIDGE)(TOWER)	KG	13 100 000		
71 (F)	049315	ERECT STRUCTURAL STEEL (BRIDGE)(TOWER)	KG	13 100 000		
72 (F)	049316	FURNISH STRUCTURAL STEEL (BRIDGE)(TOWER STRUT)	EA	68		
73 (F)	049317	FURNISH STRUCTURAL STEEL (BRIDGE) (BOX GIRDER)	KG	28 800 000		
74 (F)	049318	ERECT STRUCTURAL STEEL (BRIDGE) (BOX GIRDER)	KG	28 800 000		
75 (F)	049319	FURNISH STRUCTURAL STEEL (BRIDGE) (BIKEPATH)	KG	1 275 000		
76 (F)	049320	ERECT STRUCTURAL STEEL (BRIDGE) (BIKEPATH)	KG	1 220 000		
77 (S-F)	049321	FURNISH STRUCTURAL STEEL (BRIDGE) (SADDLE)	KG	1 130 000		
78 (F)	049322	ERECT STRUCTURAL STEEL (BRIDGE)(SADDLE)	KG	1 130 000		
79 (S-F)	049323	FURNISH AND INSTALL SHEAR KEY (PIER E2)	EA	2		
80 (F)	049324	FURNISH STRUCTURAL STEEL (BRIDGE) (PIPE BEAM)	KG	260 000		

**ALTERNATIVE 1
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81 (F)	049325	ERECT STRUCTURAL STEEL (BRIDGE) (PIPE BEAM)	KG	260 000		
82 (F)	049326	INSTALL STRUCTURAL STEEL (BRIDGE) (PIPE BEAM)(HINGE A)	EA	4		
83	049327	FURNISH STRUCTURAL STEEL (BRIDGE) (PIPE BEAM FUSE)	EA	4		
84 (S-F)	049328	FURNISH PWS CABLE SYSTEM	KG	5 200 000		
85 (S-F)	049329	ERECT PWS CABLE SYSTEM	KG	5 200 000		
86 (S-F)	049330	FURNISH SUSPENDER SYSTEM	KG	650 000		
87 (S-F)	049331	ERECT SUSPENDER SYSTEM	KG	650 000		
88 (S)	049332	TOWER SUSPENDER ASSEMBLIES	LS	LUMP SUM	LUMP SUM	
89	030712	SERVICE PLATFORM	EA	5		
90	560218	FURNISH SIGN STRUCTURE (TRUSS)	KG	9200		
91	560219	INSTALL SIGN STRUCTURE (TRUSS)	KG	9200		
92	562002	METAL (BARRIER MOUNTED SIGN)	KG	1020		
93 (S-F)	049333	PLASTIC LUMBER	M3	99		
94 (S-F)	049334	UHMW POLYETHYLENE PANEL (50 MM)	M2	637		
95 (S)	590115	CLEAN AND PAINT STRUCTURAL STEEL	LS	LUMP SUM	LUMP SUM	
96 (S)	049335	CLEAN AND PAINT STRUCTURAL STEEL (TOWER)	LS	LUMP SUM	LUMP SUM	
97 (S)	049336	CLEAN AND PAINT STRUCTURAL STEEL (BOX GIRDER)	LS	LUMP SUM	LUMP SUM	
98 (S)	049337	CLEAN AND PAINT STRUCTURAL STEEL (BIKEPATH)	LS	LUMP SUM	LUMP SUM	
99 (S)	049338	CLEAN AND PAINT CABLE SYSTEM	LS	LUMP SUM	LUMP SUM	
100	030757	MISCELLANEOUS METAL (CABLE TRAY SUPPORT)	KG	2110		

**ALTERNATIVE 1
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	563 950		
102	030713	PERIMETER FENCE (TYPE WM 1.8)	M	410		
103 (S-F)	833020	CHAIN LINK RAILING	M	52		
104 (S-F)	049339	STEEL BARRIER (TYPE 732 MODIFIED)	M	2490		
105 (S-F)	049340	BIKEPATH RAILING	M	1246		
106 (F)	839527	CABLE RAILING (MODIFIED)	M	3000		
107 (F)	839717	CONCRETE BARRIER (TYPE 732 MODIFIED)	M	7		
108	840515	THERMOPLASTIC PAVEMENT MARKING	M2	18		
109	840561	100 MM THERMOPLASTIC TRAFFIC STRIPE	M	7500		
110	030715	75 MM PAINT TRAFFIC STRIPE (BLACK, 1-COAT)	M	2500		
111	840656	PAINT TRAFFIC STRIPE (2-COAT)	M	590		
112	840666	PAINT PAVEMENT MARKING (2-COAT)	M2	8		
113	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	1390		
114	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	440		
115	030716	UNDERGROUND	LS	LUMP SUM	LUMP SUM	
116	049341	ELECTRICAL UTILITIES REMOVAL	LS	LUMP SUM	LUMP SUM	
117 (S)	049342	ELEVATOR	LS	LUMP SUM	LUMP SUM	
118 (F)	049343	MAINTENANCE TRAVELER	LS	LUMP SUM	LUMP SUM	
119 (S-F)	049344	MAINTENANCE TRAVELER (BIKEPATH)	LS	LUMP SUM	LUMP SUM	
120 (S-f)	049345	TRAVELER SUPPORT RAIL	KG	938 000		

**ALTERNATIVE 1
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141	030735	CCSF SEWER FORCE MAIN (10 NPS)	M	640		
142	030736	CCSF WATER MAIN (12 NPS)	M	640		
143	030737	DOMESTIC WATER (2 NPS) (T1 TOWER)	M	152		
144	030738	DOMESTIC WATER (2 1/2 NPS)	M	2560		
145	030739	COMPRESS AIR (4 NPS)	M	2560		
146	030740	COMPRESS AIR (3 NPS) (T1 TOWER)	M	152		
147	030741	65 MM WATER LINE	M	45		
148	030742	75 MM WATER LINE	M	18		
149	030743	100 MM COMPRESSED AIR PIPE	M	43		
150	030744	150 MM COMPRESSED AIR PIPE	M	15		
151	030745	DEHUMIDIFIER SYSTEM	LS	LUMP SUM	LUMP SUM	
152	030747	ELEVATOR SYSTEM	LS	LUMP SUM	LUMP SUM	
153	030747	BOOSTER PUMP STATION	EA	1		
154	BLANK					
155	031195	TRANSPORTATION FOR THE ENGINEER	LS	LUMP SUM	LUMP SUM	
156	031196	PHOTO SURVEY OF EXISTING FACILITIES	LS	LUMP SUM	LUMP SUM	
157	031197	VIBRATION MONITORING	LS	LUMP SUM	LUMP SUM	
158	031198	CONSTRUCTION SURVEY	LS	LUMP SUM	LUMP SUM	
159	031199	ESTABLISH MARINE ACCESS	LS	LUMP SUM	LUMP SUM	
160	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____

**ALTERNATIVE 1
FOREIGN STEEL AND IRON ALTERNATIVE**

ALTERNATIVE 2 DOMESTIC STEEL AND IRON ALTERNATIVE
04-0120F4

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
1	030748	WORKING DRAWING CAMPUS	LS	LUMP SUM	LUMP SUM	
2	030702	ELECTRONIC MOBILE DAILY DIAIRY COMPUTER SYSTEM DATA DELIVERY	LS	LUMP SUM	LUMP SUM	
3	BLANK					
4	030704	EROSION CONTROL (TYPE B)	M2	1570		
5	070010	PROJECT SCHEDULE (CRITICAL PATH)	LS	LUMP SUM	LUMP SUM	
6	070018	TIME-RELATED OVERHEAD	WDAY	1429		
7	071322	TEMPORARY FENCE (TYPE CL-1.8)	M	205		
8	030705	3.66 M TEMPORARY GATE (TYPE CL-1.8)	EA	1		
9	049281	FURNISH AND REMOVE TEMPORARY TOWER (AE)	LS	LUMP SUM	LUMP SUM	
10	049282	FURNISH AND REMOVE TEMPORARY TOWER (AW)	LS	LUMP SUM	LUMP SUM	
11	049283	FURNISH AND REMOVE TEMPORARY TOWER (BE)	LS	LUMP SUM	LUMP SUM	
12	049284	FURNISH AND REMOVE TEMPORARY TOWER (BW)	LS	LUMP SUM	LUMP SUM	
13	049285	FURNISH AND REMOVE TEMPORARY TOWER (CE)	LS	LUMP SUM	LUMP SUM	
14	049286	FURNISH AND REMOVE TEMPORARY TOWER (CW)	LS	LUMP SUM	LUMP SUM	
15	049287	FURNISH AND REMOVE TEMPORARY TOWER (DE)	LS	LUMP SUM	LUMP SUM	
16	049288	FURNISH AND REMOVE TEMPORARY TOWER (DW)	LS	LUMP SUM	LUMP SUM	
17	049289	FURNISH AND REMOVE TEMPORARY TOWER (E2E)	LS	LUMP SUM	LUMP SUM	
18	049290	FURNISH AND REMOVE TEMPORARY TOWER (E2W)	LS	LUMP SUM	LUMP SUM	
19	049291	FURNISH AND REMOVE TEMPORARY TOWER (FE)	LS	LUMP SUM	LUMP SUM	
20	049292	FURNISH AND REMOVE TEMPORARY TOWER (FW)	LS	LUMP SUM	LUMP SUM	

ALTERNATIVE 2
04-0120F4

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
41	203021	FIBER ROLLS	M	252		
42	203024	COMPOST (EROSION CONTROL)	KG	470		
43	030711	MOVE IN/OUT (EROSION CONTROL)	EA	4		
44	203045	PURE LIVE SEED (EROSION CONTROL)	KG	30		
45 (S)	049299	EPOXY ASPHALT CONCRETE AGGREGATE	TONN	3350		
46 (S)	049300	EPOXY ASPHALT BOND COAT AND BINDER	KG	244 000		
47 (S)	049301	APPLY EPOXY ASPHALT BOND COAT	M2	29 914		
48 (S)	049302	PLACE EPOXY ASPHALT CONCRETE SURFACING	M2	29 914		
49 (S)	049303	PRESTRESSING CAST-IN-PLACE CONCRETE (PIER W2)	LS	LUMP SUM	LUMP SUM	
50 (S)	049304	PRESTRESSING CAST-IN-PLACE CONCRETE (PIER E2)	LS	LUMP SUM	LUMP SUM	
51 (S)	049305	HIGH STRENGTH PRESTRESSING ROD (75 MM)	LS	LUMP SUM	LUMP SUM	
52 (S)	049306	CABLE TIEDOWN	LS	LUMP SUM	LUMP SUM	
53 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	8200		
54 (F)	049307	STRUCTURAL CONCRETE, FENDER	M3	1204		
55 (F)	049308	MINOR CONCRETE (COUNTERWEIGHT)	M3	430		
56 (S-F)	049309	FURNISH POLYESTER CONCRETE OVERLAY (13 MM)	M3	40		
57 (S-F)	049310	PLACE POLYESTER CONCRETE OVERLAY (13 MM)	M2	3050		
58 (S)	049311	FURNISH AND INSTALL SPHERICAL BUSHING BEARING (PIER E2)	EA	4		
59 (S)	049312	FURNISH AND INSTALL SPHERICAL BUSHING RING BEARING (HINGE K)	EA	4		
60 (S)	049313	INSTALL CIRCULAR SEGMENTED BEARING (HINGE A)	EA	16		

**ALTERNATIVE 2
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
61 (S)	519123	JOINT SEAL (TYPE B - MR 50 MM)	M	56		
62 (S)	049347	MODULAR JOINT SEAL ASSEMBLY (HINGE KW)	M	25		
63 (S)	049348	MODULAR JOINT SEAL ASSEMBLY (HINGE KE)	M	25		
64 (S)	049349	MODULAR JOINT SEAL ASSEMBLY (HINGE AW)	M	25		
65 (S)	049350	MODULAR JOINT SEAL ASSEMBLY (HINGE AE)	M	25		
66 (S-F)	520102	BAR REINFORCING STEEL (BRIDGE)	KG	1 410 000		
67 (S-F)	520110	BAR REINFORCING STEEL (EPOXY COATED) (BRIDGE)	KG	140 370		
68 (F)	550203	FURNISH STRUCTURAL STEEL (BRIDGE)	KG	183 000		
69 (F)	550204	ERECT STRUCTURAL STEEL (BRIDGE)	KG	183 000		
70 (F)	049314	FURNISH STRUCTURAL STEEL (BRIDGE)(TOWER)	KG	13 100 000		
71 (F)	049315	ERECT STRUCTURAL STEEL (BRIDGE)(TOWER)	KG	13 100 000		
72 (F)	049316	FURNISH STRUCTURAL STEEL (BRIDGE)(TOWER STRUT)	EA	68		
73 (F)	049317	FURNISH STRUCTURAL STEEL (BRIDGE) (BOX GIRDER)	KG	28 800 000		
74 (F)	049318	ERECT STRUCTURAL STEEL (BRIDGE) (BOX GIRDER)	KG	28 800 000		
75 (F)	049319	FURNISH STRUCTURAL STEEL (BRIDGE) (BIKEPATH)	KG	1 275 000		
76 (F)	049320	ERECT STRUCTURAL STEEL (BRIDGE) (BIKEPATH)	KG	1 220 000		
77 (S-F)	049321	FURNISH STRUCTURAL STEEL (BRIDGE) (SADDLE)	KG	1 130 000		
78 (F)	049322	ERECT STRUCTURAL STEEL (BRIDGE)(SADDLE)	KG	1 130 000		
79 (S-F)	049323	FURNISH AND INSTALL SHEAR KEY (PIER E2)	EA	2		
80 (F)	049324	FURNISH STRUCTURAL STEEL (BRIDGE) (PIPE BEAM)	KG	260 000		

**ALTERNATIVE 2
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81 (F)	049325	ERECT STRUCTURAL STEEL (BRIDGE) (PIPE BEAM)	KG	260 000		
82 (F)	049326	INSTALL STRUCTURAL STEEL (BRIDGE) (PIPE BEAM)(HINGE A)	EA	4		
83	049327	FURNISH STRUCTURAL STEEL (BRIDGE) (PIPE BEAM FUSE)	EA	4		
84 (S-F)	049328	FURNISH PWS CABLE SYSTEM	KG	5 200 000		
85 (S-F)	049329	ERECT PWS CABLE SYSTEM	KG	5 200 000		
86 (S-F)	049330	FURNISH SUSPENDER SYSTEM	KG	650 000		
87 (S-F)	049331	ERECT SUSPENDER SYSTEM	KG	650 000		
88 (S)	049332	TOWER SUSPENDER ASSEMBLIES	LS	LUMP SUM	LUMP SUM	
89	030712	SERVICE PLATFORM	EA	5		
90	560218	FURNISH SIGN STRUCTURE (TRUSS)	KG	9200		
91	560219	INSTALL SIGN STRUCTURE (TRUSS)	KG	9200		
92	562002	METAL (BARRIER MOUNTED SIGN)	KG	1020		
93 (S-F)	049333	PLASTIC LUMBER	M3	99		
94 (S-F)	049334	UHMW POLYETHYLENE PANEL (50 MM)	M2	637		
95 (S)	590115	CLEAN AND PAINT STRUCTURAL STEEL	LS	LUMP SUM	LUMP SUM	
96 (S)	049335	CLEAN AND PAINT STRUCTURAL STEEL (TOWER)	LS	LUMP SUM	LUMP SUM	
97 (S)	049336	CLEAN AND PAINT STRUCTURAL STEEL (BOX GIRDER)	LS	LUMP SUM	LUMP SUM	
98 (S)	049337	CLEAN AND PAINT STRUCTURAL STEEL (BIKEPATH)	LS	LUMP SUM	LUMP SUM	
99 (S)	049338	CLEAN AND PAINT CABLE SYSTEM	LS	LUMP SUM	LUMP SUM	
100	030757	MISCELLANEOUS METAL (CABLE TRAY SUPPORT)	KG	2110		

**ALTERNATIVE 2
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
101 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	563 950		
102	030713	PERIMETER FENCE (TYPE WM 1.8)	M	410		
103 (S-F)	833020	CHAIN LINK RAILING	M	52		
104 (S-F)	049339	STEEL BARRIER (TYPE 732 MODIFIED)	M	2490		
105 (S-F)	049340	BIKEPATH RAILING	M	1246		
106 (F)	839527	CABLE RAILING (MODIFIED)	M	3000		
107 (F)	839717	CONCRETE BARRIER (TYPE 732 MODIFIED)	M	7		
108	840515	THERMOPLASTIC PAVEMENT MARKING	M2	18		
109	840561	100 MM THERMOPLASTIC TRAFFIC STRIPE	M	7500		
110	030715	75 MM PAINT TRAFFIC STRIPE (BLACK, 1-COAT)	M	2500		
111	840656	PAINT TRAFFIC ST43 REVISED PER ADDENDUM NO. 4 DATED APRIL 16, 2003	M	590		
112	840666	PAINT PAVEMENT MARKING (2-COAT)	M2	8		
113	850101	PAVEMENT MARKER (NON-REFLECTIVE)	EA	1390		
114	850111	PAVEMENT MARKER (RETROREFLECTIVE)	EA	440		
115	030716	UNDERGROUND	LS	LUMP SUM	LUMP SUM	
116	049341	ELECTRICAL UTILITIES REMOVAL	LS	LUMP SUM	LUMP SUM	
117 (S)	049342	ELEVATOR	LS	LUMP SUM	LUMP SUM	
118 (F)	049343	MAINTENANCE TRAVELER	LS	LUMP SUM	LUMP SUM	
119 (S-F)	049344	MAINTENANCE TRAVELER (BIKEPATH)	LS	LUMP SUM	LUMP SUM	
120 (S-f)	049345	TRAVELER SUPPORT RAIL	KG	938 000		

**ALTERNATIVE 2
04-0120F4**

Item	Item Code	Item	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141	030735	CCSF SEWER FORCE MAIN (10 NPS)	M	640		
142	030736	CCSF WATER MAIN (12 NPS)	M	640		
143	030737	DOMESTIC WATER (2 NPS) (T1 TOWER)	M	152		
144	030738	DOMESTIC WATER (2 1/2 NPS)	M	2560		
145	030739	COMPRESS AIR (4 NPS)	M	2560		
146	030740	COMPRESS AIR (3 NPS) (T1 TOWER)	M	152		
147	030741	65 MM WATER LINE	M	45		
148	030742	75 MM WATER LINE	M	18		
149	030743	100 MM COMPRESSED AIR PIPE	M	43		
150	030744	150 MM COMPRESSED AIR PIPE	M	15		
151	030745	DEHUMIDIFIER SYSTEM	LS	LUMP SUM	LUMP SUM	
152	030747	ELEVATOR SYSTEM	LS	LUMP SUM	LUMP SUM	
153	030747	BOOSTER PUMP STATION	EA	1		
154	BLANK					
155	031195	TRANSPORTATION FOR THE ENGINEER	LS	LUMP SUM	LUMP SUM	
156	031196	PHOTO SURVEY OF EXISTING FACILITIES	LS	LUMP SUM	LUMP SUM	
157	031197	VIBRATION MONITORING	LS	LUMP SUM	LUMP SUM	
158	031198	CONSTRUCTION SURVEY	LS	LUMP SUM	LUMP SUM	
159	031199	ESTABLISH MARINE ACCESS	LS	LUMP SUM	LUMP SUM	
160	999990	MOBILIZATION	LS	LUMP SUM	LUMP SUM	

TOTAL BID: _____

**ALTERNATIVE 2
DOMESTIC STEEL AND IRON ALTERNATIVE**